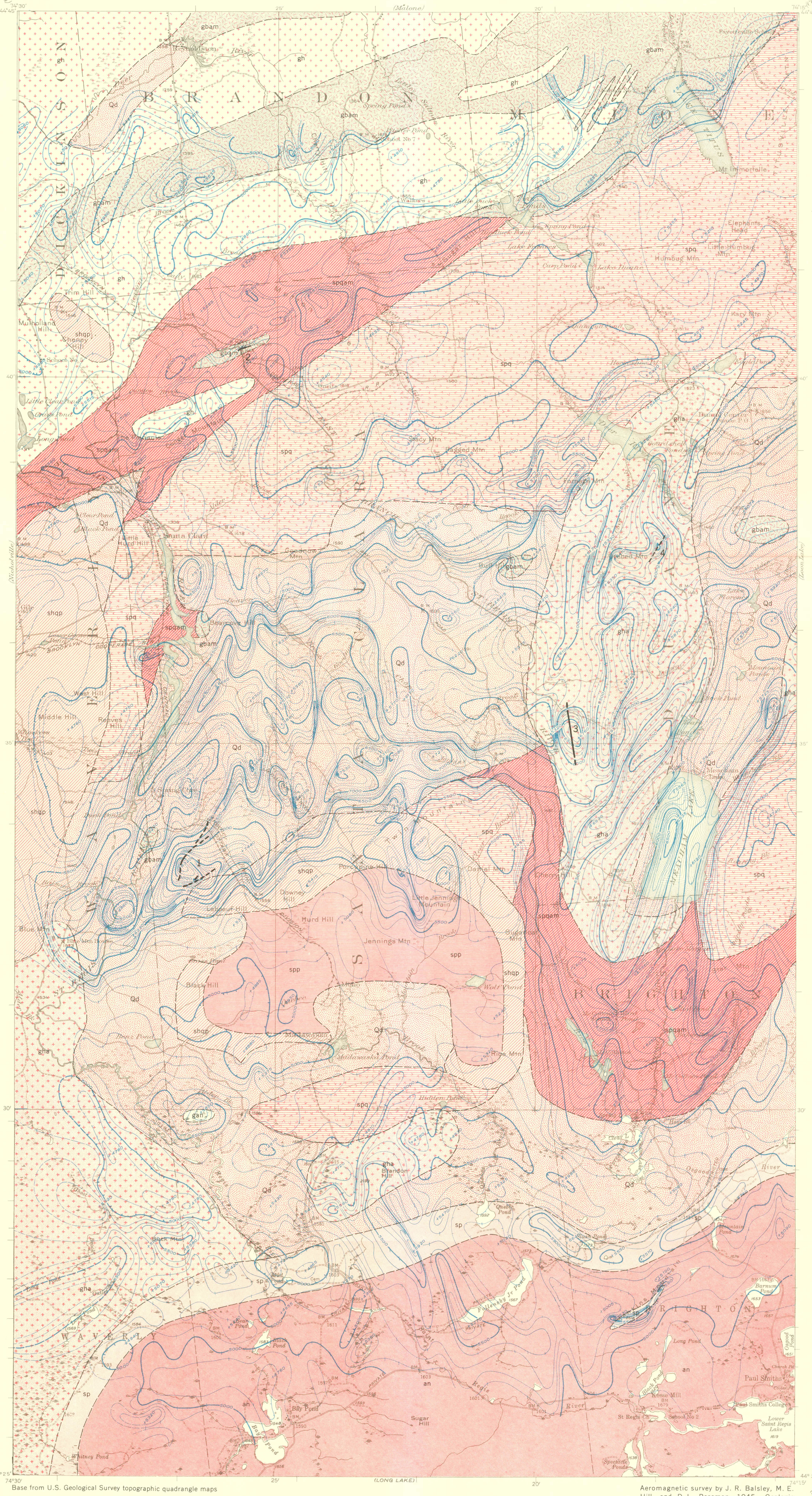


Base from U.S. Geological Survey topographic quadrangle maps

Aeromagnetic survey by J. R. Balsley, M. E. Hill, and D. L. Rossman, 1945. Geologic survey by A. F. Buddington; St Regis quadrangle, 1934; Santa Clara quadrangle modified from N.Y. State Mus. Bull. 309, 1937

EXPLANATION

QUATERNARY — Pleistocene

Qd — Glacial drift
Moraine and water-laid sands and gravels mapped only where bedrock cannot be reasonably inferred

PRECAMBRIAN

gh, gha — Hornblende granite, mostly gneissic, gh, with local layers of amphibolite, gha

sp, spq, spqam — Gneisses with equigranular texture; pyroxene syenite gneiss, sp; hornblende quartz syenite gneiss and associated granite gneiss, spq; pyroxene-hornblende quartz syenite gneiss contaminated with amphibolite, spqam

spp, shqp — Gneisses with a phacoidal, locally porphyroclastic texture; pyroxene syenite gneiss with a little quartz, spp; hornblende quartz syenite gneiss and associated granite gneiss, shqp

gbam — Metagabbro and amphibolite with intrusive granite sheets

an, gan — Anorthositic series; anorthosite with local gabbroic anorthosite in border zone, an; gabbroic anorthosite, gan

Magnetic contours and flight traverse
Contours dashed where data are incomplete; contours show total intensity relative to an arbitrary datum

Magnetic contour enclosing area of lower magnetic intensity

×5760
Measured maximum or minimum intensity within closed high or closed low

Contact
Approximately located

Dip-needle readings
Solid where more than +40°; dashed where +20° to +40°

An aeromagnetic survey of approximately 6,100 square miles in the Adirondack Mountains in northern New York State was made during May and June 1945 and August, September, and October 1946 by the U. S. Geological Survey. The survey was undertaken primarily to guide a program of exploration for magnetite, which was a joint effort by the U. S. Geological Survey, the U. S. Bureau of Mines, and the New York State Science Service. The aeromagnetic data were subsequently compiled as magnetic maps to aid in the long-range geologic studies in this region by the Geological Survey. The geology shown on the map is somewhat generalized from the more complex reality. Pleistocene drift, morainal material, and water-laid gravel and sand blanket much of the area mapped, but some are omitted from the map so that a ready comparison may be made of the aeromagnetic data and the underlying bedrock.

The magnetic measurements were made by a continuously recording AN/ASQ-3A airborne magnetometer installed in an AT-11 airplane. North-south traverse lines were flown approximately 1,000 feet above the ground at intervals of a quarter of a mile. Aerial photographs were used for pilot guidance, and the flight path of the aircraft was recorded by intermittent photographs. The distance from plane to ground was measured with a radio altimeter.

Interpretation of the magnetic map requires a great deal of caution, tempered with experience. It must be emphasized that not all the peaks and ridges on the aeromagnetic map indicate buried ore deposits. Most of the highs are produced by minor amounts of disseminated magnetite occurring as an accessory mineral throughout large volumes of country rock. The quantity of disseminated accessory magnetite is often rather uniform for a given rock type, but it may vary considerably from one rock type to another. The presence of disseminated accessory hematite, together with unexpected permanent magnetization effects, further complicates the picture. These features account for most of the anomalies. In addition, certain belts of rock contain disseminated iron oxides in amounts greater than those usually termed "accessory" but significantly less than those required to produce magnetite bodies of commercial interest. Such rock belts yield substantial magnetic anomalies.

The U. S. Geological Survey has made a ground reconnaissance by dip-needle of all the prominent aeromagnetic anomalies that are considered most likely to indicate ore deposits. This work has been supplemented in places by the U. S. Bureau of Mines and New York State Science Service. Some of the results of the work by the Geological Survey have been published in preliminary form by Buddington, (1937, 1953) and by Hawkes and Balsley (1946). Shaub (1954) has compiled dip-needle maps for some of the major aeromagnetic anomalies produced by widespread disseminations of iron oxides.

REFERENCES

Buddington, A. F., 1937, Geology of the Santa Clara quadrangle, New York: New York State Mus. Bull. 309.

Hawkes, H. E., and Balsley, J. R., 1946, Magnetic exploration for iron ore in northern New York: U. S. Geol. Survey Strategic Minerals Inv. Prelim Rept. 3-194, p. 2-4.

Postel, A. W., 1952, Geology of Clinton County magnetite district, New York: U. S. Geol. Survey Prof. Paper 237.

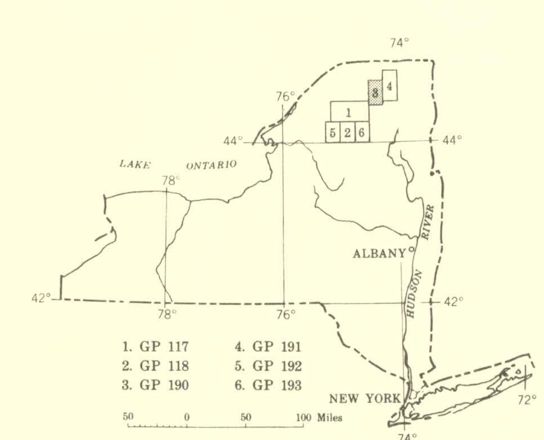
Shaub, B. M., 1954, Magnetic anomalies of the Santa Clara quadrangle, New York: Rept. Inv. no. 4, New York State Science Service, Albany.

LIST OF MAGNETITE MINES AND PROSPECTS

Includes most magnetic anomalies systematically surveyed by dip-needle by private interests or government agencies.

1. Alice (Jennings Mountain)
2. Everton
3. Mary
4. Orebed Mountain

NOTE: Aeromagnetic data are obtained and compiled along a continuous line, whereas ground magnetic surveys are made at separate points. Errors within the normal limits of any magnetic measurement may cause slight discrepencies between flight lines in an aeromagnetic map, which would be more obvious than similar discrepancies between points in a ground magnetic map. For this reason as much care should be excercised in evaluating magnetic features that appear as elongations along a single aeromagnetic traverse as in interpreting an anomaly indicated by a single ground station.



INDEX MAP OF NEW YORK SHOWING PUBLISHED AEROMAGNETIC MAPS IN THE ADIRONDACK AREA

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—MR 6933

AERROMAGNETIC AND GEOLOGIC MAP OF THE SANTA CLARA QUADRANGLE AND PART OF THE ST. REGIS QUADRANGLE, FRANKLIN COUNTY, NEW YORK

By

J. R. Balsley, A. F. Buddington and others

APPROXIMATE MEAN DECLINATION, 1959

Scale 1:62 500

1 0 1 2 3 4 Miles

Contour interval 100 and 500 gammas

1959